

**REMARKS**

Reconsideration of this application is requested. Claims 19-35 are in the case.

**I. THE 35 U.S.C. § 112, SECOND PARAGRAPH, REJECTION**

Claims 14, 16 and 18 stand rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite for the reasons stated on page 2 of the Action. In response, the new claims presented herewith have been drafted to take into account the Examiner's formal points. It is believed that the new claims presented herewith are in good formal condition and obviate the outstanding formal rejection.

The Examiner as alleged, in relation to claim 18, that it is not clear "where the optical fiber is coming from". In response, it should be noted that, at the extreme edges of an optical crosspoint switch array, as presently claimed, the input and output ports of the switch are coupled to an optical fiber for the purposes of, for example, routing or broadcasting (see page 1, line 34 through page 2, line 3 of the specification). Thus, the diameter of the input or output port must be varied (tapered) to match, as closely as possible, the diameter of the transmitting or receiving optical fiber in order to minimize the attenuation of the signal. This is well known to persons skilled in the art of optical telecommunications, and no specific recitation in the description or claims is believed to be required.

Reconsideration and withdrawal of that rejection are accordingly respectfully requested.

## II. THE PRIOR ART REJECTIONS

Claims 1-7, 9, 10, 12, 14, 15, 16 and 18 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Baba et al. Claims 8, 11 and 17 stand rejected under 35 U.S.C. § 103(a) as allegedly unpatentable over Baba et al. Those rejections are respectfully traversed.

In a first aspect, a method is provided for controlling an optical crosspoint switch which comprises intersecting input and output waveguides forming an intersection, a first upper waveguide portion which is arranged adjacent to the input waveguide and which extends at least partially along the input waveguide to the intersection, a second upper waveguide portion which is arranged adjacent to the output waveguide and which extends at least partially along the output waveguide from the intersection, and a corner mirror located at the intersection for coupling light signals from the first upper waveguide portion to the second upper waveguide portion. The method comprises the steps of, in an OFF state of the switch, using an electrical signal varying the refractive index profile of the first and second upper waveguide portion in order to prevent light transfer from occurring between the first and second upper waveguide portion and the input and output waveguides respectively and, in the OFF state of the switch, using an electrical signal varying the loss/gain characteristics of first and second upper waveguide portions, thereby enhancing the prevention of light transfer between the first and second upper waveguide portions and the input and output waveguides respectively.

In a further aspect, a method is provided for controlling an optical crosspoint switch which comprises intersecting input and output waveguides forming an intersection, a first upper waveguide portion which is arranged adjacent to the input

waveguide and which extends at least partially along the input waveguide to the intersection, a second upper waveguide portion which is arranged adjacent to the output waveguide and which extends at least partially along the output waveguide from the intersection, and a corner mirror located at the intersection for coupling light signals from the first upper waveguide portion to the second upper waveguide portion. The method comprises the steps of, in an ON state of the switch, using an electrical signal varying the refractive index profile of the first and second upper waveguide portions in order to enable light transfer to occur between the first and second upper waveguide portions and the input and output waveguides respectively and, in the ON state of the switch, using an electrical signal, varying the loss/gain characteristics of the first and second upper waveguide portions, thereby enhancing light transfer between the first and second upper waveguides and the input and output waveguide portions respectively.

In a yet further aspect, an optical crosspoint switch is provided comprising intersecting input and output waveguides forming an intersection, a first upper waveguide portion arranged adjacent to the input waveguide and extending at least partially along the input waveguide to the intersection, a second upper waveguide portion arranged adjacent to the output waveguide and extending at least partially along the output waveguide from the intersection, and a corner mirror located at the intersection for coupling light signals from the first upper waveguide portion into the second upper waveguide portion. The input and output waveguides or the first and second upper waveguide portions being made of a material having characteristics such that application of an electrical signal thereto causes variation of the loss/gain

characteristics and refractive index profile thereof.

The new claims presented with this response are not anticipated or rendered obvious by Baba. In particular, Baba does not disclose or suggest active waveguides, ☒ i.e., gain/loss of variation controlled by voltage and current. Moreover, Baba fails to demonstrate simultaneous switching of both refractive index and gain/loss. The ☒ vertically coupled indexed switch of Baba has total-internal-reflection mirrors, and use of such a switch results in signal loss and poor cross-talk performance.

In contrast, new claims 19, 20 and 21 each specify that a variation in the loss or gain characteristics of the switch occurs. The remaining claims presented herewith are novel and patentable by virtue of their dependence on new independent claim 21.

In light of the above, it is clear that the outstanding anticipation and obviousness rejections should be withdrawn. Such action is respectfully requested.

With reference to the comment on page 3 of the Action concerning joint inventorship, the subject matter of the various claims was commonly owned at the time the invention was made.

### III. NEW CLAIMS

New claims 19-35 are presented. These claims are supported by the original filed application and do introduce new matter. Entry and favorable consideration of the new claims presented herewith are respectfully requested.

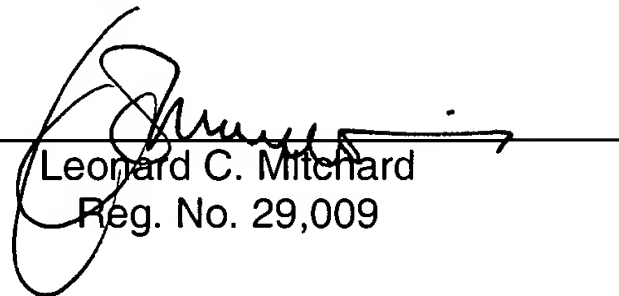
WHITE et al  
Serial No. 09/937,718  
July 3, 2003

Allowance of the application is awaited.

Respectfully submitted,

**NIXON & VANDERHYE P.C.**

By: \_\_\_\_\_

  
Leonard C. Mitchard  
Reg. No. 29,009

LCM:lfm  
1100 North Glebe Road, 8th Floor  
Arlington, VA 22201-4714  
Telephone: (703) 816-4000  
Facsimile: (703) 816-4100